

REMARKS

Claims 5 and 10 were objected to as not being illustrated in the drawings. A proposed drawing amendment to amend Fig. 5 and add a new Fig. 6, and an amendment to the specification are submitted herewith to provide antecedent basis in the specification for claims 5 and 10.

Claims 1-11 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In response to this rejection claims 1 and 3 have been canceled without prejudice and the subject matter has been re-drafted and incorporated in claim 2. The re-drafting has clarified that Applicant is claiming a method with two machining operations including conventional honing strokes in which the machining tracks resulting from the machining are within five degrees of perpendicular to a central axis of the bore, and a second forward stroke and a second return stroke in which the axial speed is increased and the rotational speed is decreased, such that crosscut tracks are produced at a greater angle from perpendicular than the machining tracks from the first forward stroke and first return stroke. The crosscut tracks are made to a substantially same depth during the second forward stroke and the second return stroke. Support for the claim is provided by Figs. 1 to 5 and the description in paragraph [009]. This claim renders moot the prior rejections on 35 USC 112, paragraph 2.

In claim 7, the expression "higher speed" has been deleted and in claim 8 the expression "the peaks of the surface structure" has been provided with an antecedent.

Claims 1-4, 6, 7, 8, 9, and 11, were rejected under 35 U.S.C. 102(b) as being anticipated by Nagel, U.S. Pat. No. 6,012,973, which is a patent of the assignee of the present invention. It was said that Nagel showed increasing a ratio of axially reciprocating speed to the rotational speed of the tool compared with the normal ratio honing tool during machining (see Figs. 1a and 1b and the col. 5, lines 35-57).

It is further noted that Nagel disclosed that a stepwise adjustment of speed ratio is possible. (Col. 5, lines 45-47).

Nagel, however, does not disclose the a process for assuring that the crosscut tracks are at the substantially the same depth as recited in new claim 2.

Claim 5 was rejected under 35 U.S.C. 103(a) as being unpatentable for obviousness over Nagel.

With respect to claim 5, it was conceded that Nagel failed to disclose that prior to the re-machining return stroke, the tool is reset to a smaller size.

However, the Office action commented that it would have been an obvious matter of design choice to provide the apparatus of Nagel with a smaller size of tool, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

Applicant would agree with this comment relative to an apparatus claim, but notes here that this is a method claim not an apparatus claim, and the function of the change of size is to provide "crosscut tracks are made to a substantially common depth" (claim 2) during the second return stroke, which is not discussed or suggested in Nagel.

Similarly, claim 10 was rejected under 35 U.S.C. 103(a) as being unpatentable for obviousness over Nagel.

It was said that it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide apparatus of Nagel with a different tool, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Again, Nagel does not discuss the step of machining the peaks, so there is no suggestion of using a different tool or any other method for machining or flattening the peaks.

The other claims depend directly or indirectly from claims 2, 5 and 10 and are seen as patentable for at least the same reasons as these claims.

Claim 11 is further noted as limiting the process to three reciprocal honing strokes, which is fewer than disclosed in Nagel's general discussion of a stepwise adjustment process.

In addition to the amendments discussed above, the specification has been amended to provide proper subject headings and revise the description of the drawings.


CONCLUSION

No fee is believed to be due for extra claims, however if any fee is deemed to be due or to be credited, authorization is hereby given to use Deposit Acct. 17-0055.

In view of the Amendment and Remarks, reconsideration of the patent application is respectfully requested. After the amendment, claims 2 and 4-11 are now pending and a Notice of Allowance for these claims is earnestly solicited.

Respectfully submitted,

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